

What Is Claimed Is:

1 1. A method for providing seamless transition
2 between a plurality of sensor measurement ranges
3 comprising:
4 selecting a sensor output corresponding to one
5 of the plurality of sensor measurement ranges as an
6 input signal for a control process;
7 determining if the range of the selected
8 sensor output is of a sensitivity higher than a
9 predetermined sensitivity;
10 converting the value of a higher sensitivity
11 sensor output to a value corresponding to the
12 predetermined sensitivity range;
13 determining an error value between the
14 converted sensor output value and a sensor output
15 corresponding to a range having the predetermined
16 sensitivity; and
17 modifying the sensor output based on the error
18 value when switching from the selected sensor output to
19 the sensor output corresponding to the range of
20 predetermined sensitivity.

1 2. The method of claim 1 wherein the
2 selected sensor output is used as a feedback input to
3 the control process.

1 3. The method of claim 1 wherein selecting
2 the sensor output comprises comparing a received sensor
3 output to a threshold value, and determining whether the
4 received sensor output is within range based on the
5 outcome of the comparison.

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1 4. The method of claim 1 wherein the range
2 having the predetermined sensitivity corresponds to a
3 total system response range, and the range having a
4 higher sensitivity corresponds to a subset within the
5 total response range.

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1 5. The method of claim 1 wherein the
2 selected sensor output is used as a feedback input for
3 controlling position of a throttle plate on a vehicle
4 engine.

1 6. A system for providing seamless
2 transition between a plurality of sensor measurement
3 ranges comprising:

4 a sensor arrangement for providing output
5 signals corresponding to the plurality of measurement
6 ranges, wherein the measurement ranges have different
7 levels of sensitivity; and

8 a controller coupled to the sensor arrangement
9 for receiving the sensor outputs, said controller
10 arranged to select a sensor output corresponding to one
11 of the plurality of sensor measurement ranges as an
12 input signal for a control process, determine if the
13 range of the selected sensor output is of a sensitivity
14 higher than a predetermined sensitivity, convert the
15 value of a higher sensitivity sensor output to a value
16 corresponding to the predetermined sensitivity range,
17 determine an error value between the converted sensor
18 output value and a sensor output corresponding to a
19 range having the predetermined sensitivity, and modify
20 the received sensor output based on the error value when
21 switching from the selected sensor output to a sensor

22 output corresponding to the range of predetermined
23 sensitivity.

1 2. The system of claim ~~6~~ wherein the sensor
2 arrangement comprises a plurality of different sensors
3 each arranged to generate an output at a particular
4 sensitivity.

1 3. The system of claim ~~6~~ wherein the sensor
2 arrangement comprises a sensor having a processing
3 circuit arranged to generate multiple outputs of
4 differing sensitivity.

1 4. The system of claim ~~6~~ wherein the
2 controller is arranged to determine whether the
3 sensitivity of the selected sensor output is higher by
4 comparing a received sensor output to a threshold value,
5 and determining whether the received sensor output is
6 within range based on the outcome of the comparison.

1 5. The system of claim ~~6~~ wherein the range
2 having the predetermined sensitivity is arranged to
3 correspond to a total system response range, and the
4 range having a higher sensitivity is arranged to
5 correspond to a subset within the total response range.

1 6. The system of claim ~~2~~ ⁵₁₆ wherein the
2 controller is further arranged to use the received
3 sensor outputs as a feedback for controlling a position
4 of a throttle plate on a vehicle engine.